

**ABSTRACT****RADIO RECEIVER**

5        A radio receiver is configurable to operate in both low-IF and zero-IF modes with maximum re-use of of analogue and digital circuitry between modes. The receiver comprises a quadrature down-converter (108,110,112,114) for generating in-phase (I) and quadrature (Q) signals at an intermediate frequency and a complex filter (516) for performing image  
10      rejection filtering.

In the low-IF mode, one of the outputs (Q) of the filter (516) is terminated, the other (I) is digitised by a non-complex ADC (520), then the digital signal is filtered and decimated. Quadrature-related IF signals are then re-generated before down-conversion and demodulation.

15      In the zero-IF mode, both outputs of the filter (516) are digitised and processed in parallel before demodulation.

20      By enabling analogue-to-digital conversion and channel filtering to be performed at low-IF on non-complex signals, use of just two non-complex ADCs (120,1620) is possible, thereby avoiding duplication of circuitry and providing significant power savings.

(Figure 17)